WHAT IS CLAIMED IS:

1. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged beam or light onto the sample using the pattern shape data in the bitmap format, and the data processing means comprising a function of rejecting an overlap area between patterns from pattern vertex data defining the pattern shape; and a function of generating the pattern shape data in the bitmap format based on the result of the overlap rejection function.

2. The exposure apparatus according to claim 1, wherein the data processing means has a data format for expressing the pattern shape by a pair of opposite corner point coordinates of each line parallel to any one coordinate axis of the orthogonal coordinates.

3. An exposure apparatus, comprising: a means for applying a charged particle beam or a light onto a sample, and exposing a desired pattern onto the sample; a data processing means for bitmapping the shape of the pattern, and generating the pattern shape data in the bitmap format; and a means for controlling the application of the charged particle beam or light onto the sample using the pattern shape data in the bitmap

format, and the data processing means comprising a function of decomposing the pattern shape into a plurality of rectangle patterns parallel to any one coordinate axis of the orthogonal coordinates defined on the sample, and converting the pattern shape into the data format for expressing the pattern shape as a pair of opposite corner point coordinates of each line parallel to any one coordinate axis of the orthogonal coordinates defined on the sample; a function of grouping corner point data representing the respective rectangle patterns on a per given coordinate area basis, and sorting the respective grouped corner point data by reference to the coordinates of the respective corner point data; a function of rejecting an overlap area between patterns from the respective sorted corner point data; and a function of generating the pattern shape data in the bitmap format based on the result of the overlap rejection function.

4. The exposure apparatus according to claim 3, wherein the coordinate area for grouping the respective corner point data is an area corresponding to an array of pixels arranged adjacent to each other in a direction parallel to any one coordinate axis of the orthogonal coordinates defined on the sample out of pixel arrays of the bitmap.

5. The exposure apparatus according to claim 3, wherein the line formed by the pair of the corner points representing the pattern and the direction of

the bitmap pixel array for grouping the corner point data are parallel to each other, and the direction of the bitmap pixel array for grouping the corner point data and the direction of scanning of the charged beam or light are parallel to each other.

6. The exposure apparatus according to claim 3, wherein, out of the respective corner points of the corner point pair, one is set to be a start point and the other is set to be an end point according to the magnitude of the coordinate data with respect to the coordinate axis parallel to the line formed thereby, so that identity data for identifying the start point or the end point is appended to each corner point coordinate data, and in each pattern to which the lines belong, one is set to be an upper line, and the other is set to be a lower line according to the magnitude of the coordinate data of the respective lines with respect to their orthogonal coordinate axis, so that identity data for identifying the upper line or the lower line is appended to each corner point coordinate data.

7. The exposure apparatus according to claim 6, wherein the overlap rejection processing has a function of sequentially reading and receiving the sorted corner point data one by one, a function of determining the identity data of the received corner point, a function of storing and holding the corner point data based on the determination result of the identity data, a

function of calculating the relationship between the received corner point data and the corner point data stored and held prior to the receipt of the corner point data, and a function of determining whether the corner point data represent the corner points forming the lines corresponding to the outermost periphery of the pattern.

8. The exposure apparatus according to claim 7, wherein the corner point data pairs determined to be the corner points forming the lines corresponding to the outermost periphery of the pattern by the function of determining whether the corner point data represent the corner points forming the lines corresponding to the outermost periphery of the pattern are sequentially outputted to the function of generating the pattern shape data in the bitmap format, and the function of generating pattern data in a bitmap format from the corner point data representing the outermost periphery of the pattern has a function of sequentially receiving the corner point data one by one, calculating the area of a rectangle generated in a region including the corner point data as vertexes, and for grouping the corner points, or in a part of the region, and sequentially performing summation on a per the bitmap-constituting pixel basis.

9. The exposure apparatus according to claim 8, wherein the function of performing summation of the areas of the rectangle calculated on a per the

sequentially received corner point data basis has a function of determining the identity data of the received corner point, and determining the sign for area summation of the rectangle.

10. The exposure apparatus according to claim 3, configured for dividing the pattern shape data in the bitmap format, and controlling the applications of a plurality of charged particle beams or light rays thereon.

11. An exposure method, comprising the steps of: controlling the application of a charged particle beam or a light on a sample using pattern shape data in a bitmap format, and exposing a desired pattern onto the sample; and in addition, decomposing the pattern shape into a plurality of rectangle patterns parallel to any one coordinate axis of the orthogonal axes defined on the sample, and converting each rectangle pattern into the data format for expressing the pattern shape by a pair of opposite corner point coordinates of each line parallel to any one coordinate axis of the orthogonal coordinates defined on the sample; grouping corner point data representing the respective rectangle patterns on a per given coordinate area basis, and sorting the respective grouped corner point data by reference to the coordinates of the respective corner point data; and rejecting an overlap area between patterns from the respective sorted corner point data, wherein the pattern shape data in the bitmap format is

generated based on the result of the overlap rejection step.

12. The exposure method according to claim 11, wherein the coordinate area for grouping the respective corner point data is an area corresponding to an array of pixels arranged adjacent to each other in a direction parallel to any one coordinate axis of the orthogonal coordinates defined on the sample out of pixel arrays of the bitmap.

13. The exposure method according to claim 11, wherein the line formed by each pair of the corner points representing the pattern and the direction of the bitmap pixel array for grouping the corner point data are parallel to each other, and the direction of the bitmap pixel array for grouping the corner point data and the direction of scanning of the charged beam or light are parallel to each other.

14. The exposure method according to claim 11, wherein, out of the respective corner points of each corner point pair, one is set to be a start point and the other is set to be an end point according to the magnitude of the coordinate data with respect to a coordinate axis parallel to the line formed thereby, so that identity data for identifying the start point or the end point is appended to each corner point coordinate data, and in each pattern to which the lines belong, one is set to be an upper line, and the other is set to be a lower line according to the magnitude of

the coordinate data of the respective lines with respect to their orthogonal coordinate axis, so that identity data for identifying the upper line or the lower line is appended to each corner point coordinate data.

15. The exposure method according to claim 14, wherein the overlap rejection processing comprises the steps of: sequentially reading and receiving the sorted corner point data one by one; determining the identity data of the received corner point; storing and holding the corner point data based on the determination result of the identity data; calculating the relationship between the received corner point data and the corner point data stored and held prior to the receipt of the corner point data, and determining whether the corner point data represent the corner points forming the lines corresponding to the outermost periphery of the pattern.